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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,168	11/12/2003	Stephen D. Allen	32428.00.0010	7573

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EXAMINER	
MENON, KRISHNAN S	

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,168	ALLEN ET AL.	
	Examiner	Art Unit	
	Krishnan S. Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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LLC

DETAILED ACTION

Claims 1-14 and 16-34 are pending after the amendment of 3/7/05

Information Disclosure Statement

The IDS presented on 11/15/04 was considered. However the only reference cited in it is being crossed out because this reference was already presented by the examiner in an 892 in the prior office action.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 and 16-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 21 recite "... polymer having effective molecular size and weight ... to neutralize all the coagulated particles...". No disclosure was found in the specification or the claims as originally filed to support this newly added limitation, especially what would be the effective size or molecular weight to neutralize the coagulated particles. All claims recite viscosity of solid particles as less than 50 cp/s, and weight of the particles as 0.99-1.004

grams/milliliter, which does not seem to have support in the specification or claims as originally filed.

Claims 1-14 and 16-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation viscosity less than 50 cp/s is for plurality of solid particles. This recitation is non-enabling. Viscosities are represented in centipoises, and is typically a characteristic of a fluid, solution or slurry. Applicant needs to show how solid particles will have a viscosity of less than 50 cp/s, and where in the specification it is disclosed.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 and 16-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms:

effective molecular size and weight (claim 1), effective amount, effective molecular size and weight (claim 21)

controlled molecular weight (claim 9)

low molecular weight (claim 11)

are relative terms which render the claims indefinite. These terms are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-14,16-19, and 21-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bladden et al (US 5,560,831) in view of Golden (US 2002/0003112 A1)

Claim 1: Bladden teaches a method of removing suspended and dissolved material form a fruit and vegetable wastewater (col 1 lines 7-16) comprising adding a coagulant polymer to form coagulant particles (col 5 lines 40-50), synthetic organic polymer having "effective" molecular weight and size (col 6 lines 1-18; ref uses same material as applicant; more over, these are commercially available materials, and therefore are expected to be effective), and filtering (col 3 lines 7-15).

Re the limitation, as amended, "... into a plurality of solid particles ...of size ... 50 microns, a weight ... 0.99 to 1.04 grams per milliliter, and viscosity less than 50 cp/s": these properties of the solid particles produced in the process would be inherent since

the reference has the same process and uses the same chemicals. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986).

Re the limitation 'tubular microfiltration membrane having fluid flow of at least 250 GFD: Bladden teaches only filter screens or other devices for dewatering the sludge and does not teach microfiltration membranes. Golden teaches gravity settling followed by filtration (para 0024), with filtration conducted in a tank fitted with microfiltration membranes having flow 200-1500 GFD (para 0030). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Golden in the teaching of Bladden because Golden teaches a more efficient and quicker process (para 0013) for meeting the stringent effluent discharge limits (para 0002-0003).

Claims 2 and 3: Coagulant is aluminum (+3) compounds (col 5 lines 40-50)

Claim 4 adds the further limitation of ferric chloride or sulfate as the coagulant, which is not taught by Bladden. Golden teaches ferric chloride and aluminum salts as equivalent coagulants for treating wastewater (para 0019). It would be obvious to one of ordinary skill in the art at the time of invention that Ferric chloride would be an obvious equivalent of Al salts for the coagulation process because Golden teaches that the Al or Fe salts as equivalents for the coagulation process.

Claim 7: acidity and basisity of the polymer depend on pH – inherent, applicant uses the same chemicals as in the reference – In re King.

Claim 8: coagulant added between 50 – 200 ppm (col 5 lines 60-67)

Claim 9: Controlled mol weight cation – inherent, chemicals same as in the reference – In re King

Claim 10: DADMAD, acrylamide, etc – col 6 lines 1-18

Claims 11, 12: controlled mol weight and backbone of known mol weight – inherent, chemicals same as in ref – In re King. Applicant does not specify the molecular weight etc. The chemicals in the reference inherently have their own molecular weights.

Claim 13: ratio of polymer to coagulant is from 5:1 to 25:1 – see col 5 line 60 – col 6 line 18.

Claim 14: synthetic organic polymer from 10-50 ppm – col 6 lines 1-18

Claim 19: adjust pH – col 6 lines 40-51

Claims 5 and 6 add the further limitations of coagulant being added on the basis of TSS, BOD and COD; and the amount is determined by the equation presented. Bladden does not teach such details. However, it would be obvious to one of ordinary skill in the art at the time of invention that the amount of coagulant to be added depend on the concentration of the waste materials in the fluid to be treated, and can be optimized; COD,BOD and TSS being just the ways of expressing the concentration. Discovery of an optimum value of a result effective variable in a known process is

ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955).

Claim 16 adds the further limitation of dwell time between 5 and 30 minutes, which is also optimizable depending on the process flow rate and the concentration of the contaminants – In re Boesch and Slaney.

Independent Claim 21 adds, over claim 1, the further limitations of adding a wastewater tank (Bladden – abstract, figures; also taught by Golden), determining the BOD, COD, etc (implied in the references: one would determine the BOD, COD, etc before adding the required amount of the chemicals. "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976).), adding the chemicals to the tank, the equation for determining the amount of coagulant (optimizable – In re Boesch and Slaney), molecular weight of polymer and specific definable controllable particle size are inherent in the ref (applicants use the same chemicals in the same process), ratio of coagulant to polymer 5:1 – 25:1 (col 5 line 60 – col 6 line 18).

Claim 22: aluminum +3 – col 5 lines 40-50

Claim 23: DADMAC, etc – col 6 lines 1-18.

Claims 17 and 18 add polypropylene filter membrane and the flow from outside-in for the membrane, which is not taught by Bladden. Golden teaches polypropylene membrane and outside-in flow (para 0031 and figures). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Golden in the teaching of Bladden for improved filtration at high flow rates at low pressure (see Golden abstract).

Claim 24: Independent Claim 24 adds the further limitations of a tank and a settling process and continuous filtration through a filter membrane in addition to the limitations of claim 1, which Bladden does not teach. Golden teaches settling process and filtration through filter membrane (para 0024, 0031 and figures). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Golden in the teaching of Bladden to have gravity settling prior to filtration with the membrane to obtain improved flow rates at low pressure.

Claim 32: Independent claim 32 adds further limitations to the limitations of claim 1. A tank is taught by both references as above. The limitations of Al+3 etc as the coagulants, DADMAC, etc as the polymers, continuous stream and filter membrane are taught by Bladden in view of Golden. Bladden in view of Golden does not teach solid particles collected on the membrane as forming a separate filter, and the flow through the membrane not being significantly reduced. However, it would be obvious to one of ordinary skill in the art at the time of invention that this would be inherent in the process because the references use the same membrane and the same process – In re King. Also, the claiming of a new use, new function or unknown property which is inherently

present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d, 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Claim 25: Al+3 based coagulant – see Bladden col 5 lines 40-50

Claim 26: DADMAC etc – Bladden col 6 lines 1-18

Claims 27, 33: dwell time is optimizable as explained in claim 16

Claims 28,29 and 34: flow rates of wastewater and treated liquid/solution are equal – optimizable by process flow rates and material balance – In re Boesch and Slaney.

Claim 30: solid particles collected on the filter membrane would act as a separate filter and filter out other particles – see claim 32 above..

Claim 31: Flow outside-in – see Golden figures.

2. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bladden et al (US 5,560,831) in view of Golden (US 2002/0003112 A1) as applied to claim 19 above and further in view of Rawlings et al (US 4,144,355)

Claim 20 adds the further limitation of adjusting pH with MgO, which Bladden in view of Golden does not teach. Rawlings teaches adjusting pH with alkali or alkali earth metal hydroxides (Mg-hydroxide is alkali earth metal hydroxide) as equivalent. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Rawlings in the teaching of Bladden to adjust the pH for the formation of a gel containing the suspended solids as taught by Rawlings (col 3 lines 21-37).

Response to Arguments

Applicant's arguments with respect to claims 1 and 21 have been considered but are moot in view of the new ground(s) of rejection.

With respect to the only main argument that the Bladden ref does not teach or suggest that the coagulant may be a mixture of polymers as presently claimed: see col 5 lines 40-51 wherein mixture of polyaluminum chloride and polyacrylamide is used.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan S. Menon
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4/4/05

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